



An Integrated Approach to the Nuclear Safety-Security Interface

U.S. Nuclear Regulatory Commission Perspectives

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- U.S. Nuclear Regulatory Commission (USNRC) mission, strategic goals, and regulatory framework
- U.S. approach to security at nuclear power plants
- Safety-Security Interface:
 - Importance
 - Regulatory framework/oversight
 - Considerations for improvement

NRC Mission

To license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of



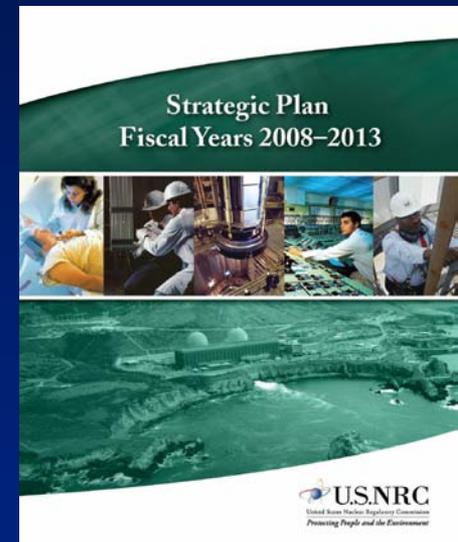
public health and safety, promote the common defense and security, and protect the environment.

Scope of Responsibility

- NRC's regulatory mission covers three main areas:
 - ✓ Reactors: commercial reactors for generating electric power and non-power reactors used for research, testing, and training
 - ✓ Materials: uses of nuclear materials in medical, industrial, and academic settings and facilities that produce nuclear fuel
 - ✓ Waste: transportation, storage, and disposal of nuclear materials and waste, and decommissioning of nuclear facilities from service

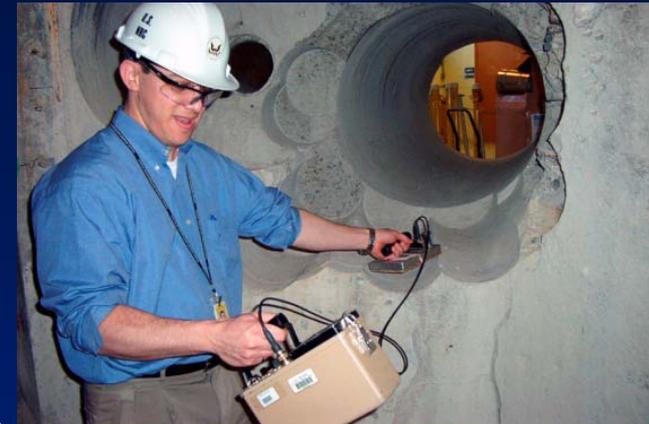
USNRC Strategic Goals

- **Safety:** Ensure adequate protection of public health and safety and the environment
- **Security:** Ensure adequate protection in the secure use and management of radioactive materials.



Regulatory Framework

- Regulations
- Licensing
- Oversight
 - ✓ Inspection
 - ✓ Enforcement



U.S. Approach to Security at Nuclear Power Plants

- Security Force: Paramilitary security (armed)
- Assessing the Design Basis Threat and Adversary Characteristics
- Physical security plan
- Physical barriers (e.g., vehicle barriers, intrusion detection systems)
- Site access controls
- Assessment of insider threat mitigation
- Behavioral observation program

A Changing Environment

- National security is dominant concern
- Redefined “adequate protection” after terrorist events of September 11, 2001
- What does “safety-security” interface mean?
 - Nuclear Security
 - Nuclear Safety

Definitions (IAEA Glossary)

- **Nuclear Safety:** *The achievement of proper operating conditions, prevention of accident or mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation hazards.*
- **Nuclear Security:** *The prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear materials, other radioactive substances or their associate facilities.*

Importance of the Safety-Security Interface

Why is Safety-Security interface important?

- Ineffective management of a safety/security interface could potentially result in:
 - Delays of scheduled activities,
 - Unintended security vulnerabilities,
 - Unintended impacts to safety systems
 - Unintended impacts to emergency response activities

Importance (continued)

- Physical protection measures must take into account safety requirements such as accessibility to equipment for the purpose of in-service monitoring and maintenance, together with requirements relative to safety in the workplace, and the effectiveness of operation, such that the evacuation of, or access to, site areas in the event of a security incident or radiological accident, are not adversely impacted.

Importance (continued)

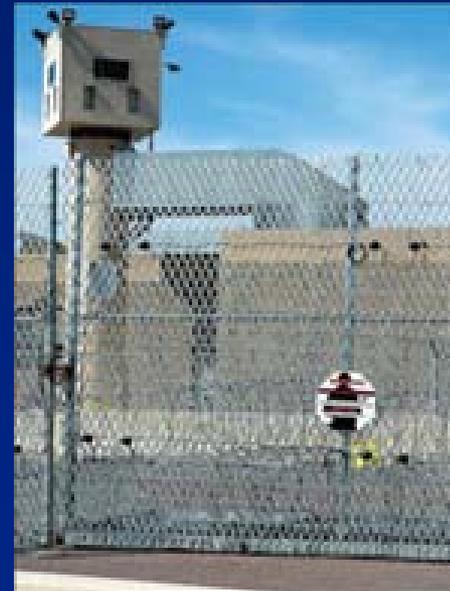
- Access and operations by emergency teams (firefighting, emergency responders, etc.) must not be impeded unnecessarily for safety reasons, but access to certain areas of the plant must be continuously controlled.

Cyber Security Aspect

- Operational upgrades and maintenance activities for digital systems are facilitated by easily accessing the individual digital controllers or System Control & Data Acquisition systems with portable computers or portable media.
When safety systems are involved, physical security and access control must be maintained to avoid the introduction of malware into safety systems, security systems, or systems that could impact emergency response.

Regulatory Framework for Safety-Security Interface

- ✓ Regulations and Guidance
- ✓ Regulatory Oversight
- ✓ Regulatory Processes
- ✓ Collaborative Efforts



Regulations & Guidance

- NRC established regulatory requirements¹ for Safety-Security interface in Title 10, Code of Federal Regulations, Part 73.58 (10 CFR 73.58) – *Physical Protection of Plants and Materials*
- Guidance for this new requirement is published as USNRC Regulatory Guide 5.74, *Managing the Safety/Security Interface*

¹ www.nrc.gov/reading-rm/doc-collections/cfr/part073/part073-0058.html

Regulatory Requirements

- 10 CFR 73.58 requirements for the safety/security interface for nuclear power reactors:
 - ✓ Assess and manage the *potential* for adverse effects on safety and security, including the site emergency plan, before implementing changes
 - ✓ Identify, communicate and manage the potential adverse impact to maintain safety and security
 - ✓ Establish management controls or processes, including reviews and audits
 - ✓ Communicate to appropriate licensee personnel

Regulatory Guidance

- USNRC Regulatory Guide 5.74, *Managing the Safety/Security Interface*¹
 - ✓ Guidance to industry for acceptable methods to meet regulatory requirements
 - ✓ Expectations:
 - Identify *potential* adverse interactions between safety and security activities *prior* to implementation of plant changes, and
 - If adverse actions are identified, consider measures to maintain safety and security requirements

¹ www.nrc.gov/reading-rm/doc-collections/reg-guides/protection/rg/division-5/division-5-61.html

Considerations for a Successful Program

- Potential culture shift
- Safety and Security are equally important
- Requires enhanced planning, communication, and coordination at all organization levels:
 - Operations,
 - Security maintenance, &
 - Emergency response
- Enhanced coordination between organizations during document preparation
- Identify and add linkages between safety and security documents

Use Existing Processes and Controls

- Requirements may be met by already established management controls or processes:
 - Plant Operations Review Committees
 - Safety Review Boards
 - Work planning and control
 - Review and audit programs
 - Engineering, design, and maintenance
 - Quality Assurance programs

Incorporate Reviews in Plant Programs

- Review of plant changes to the facility or procedures should be adequately addressed by existing processes
- Emergent activities, due to their nature, are more likely to result in conflicts between safety and security
- Focus attention on certain plant programs to identify and assess possible safety-security interface concerns

Fukushima-Related Issues

- NRC conducted extensive Lesson-Learned analyses Post-Fukushima
- No activities identified for improvement regarding security or the safety-security interface
- Pre-planning essential
 - Emergency procedures
 - Conducting drills with safety and security focus
- Deal with the emergency at hand to ensure protection of the public

Summary

- Safety and Security are equally important
- Requires effective planning and communication at all organizational levels
- Measurable steps can be taken to improve safety-security interfaces
- Many countries have reorganized, highlighting the enhanced efficiencies of the safety-security interface programs

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